

# IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

#31 X. Coll 3/14/03

In re application of:

**BLUCHER** 

Appl. No. 09/491,639

Filed: January 27, 2000

For:

Contour Fit Pan Liner for a

**Food Service Pan** 

Art Unit: 3727

Examiner:

S. Castellano

Atty. Docket: 2102.0010000

Declaration Under 37 C.F.R. § 1.132

RECEIVED

Assistant Commissioner for Patents Washington, D.C. 20231

MAR 0 6 2003

Sir:

TECHNOLOGY CENTER R3700

- I, the undersigned, Dr. Melvin L. Druin, residing at 105A Woodland Avenue, Avonby-the-Sea, New Jersey 07717, declare and state as follows:
- 1. I am founderand President of PolyPlas Development L.L.C. a consulting and contract research and development company serving the plastics packaging industries, including the suppliers of plastics resins, packaging, and end-user processors / packers of plastics packaging for food and beverage use.
- 2. I have earned and been awarded a Doctor of Engineering degree in Chemical Engineering, a Master of Science degree in Chemical Engineering and a Bachelor of Science degree in Chemical Engineering, all from the New Jersey Institute of Technology.
- 3. I have about 40 years experience working and teaching in the field of chemical engineering with more than 35 years of that experience specifically working in and consulting to the plastic packaging industry.
- 4. While working for Celanese Corporation over the years 1967-1984, I held the following positions: Celgard Microporous Films Group Leader, Engineering Resins Technical Manager, Engineering Resins Technical Director, and Plastics Group Technical Director.
- 5. While working for Campbell Soup Company over the years 1984-1990, I held the following positions: Vice President Packaging, Campbell Container Division; and Vice President Packaging, U.S. Division. In addition, I was elected as a corporate officer in 1988.

- 6. A curriculum vitae listing my education, industry experience, honors and fellowships, professional affiliations, U.S. Patents, publications, and conferences and publications is appended hereto.
- 7. Based on my education and experience, I am an expert in plastics including materials, conversion, films, packaging, and food packaging.
- 8. I understand that the above-identified patent application ("patent application") is owned by M & Q Plastic Products, Inc. ("M&Q") of North Wales, Pennsylvania. I have never been an employee of M&Q. In addition, I have no financial interest in M&Q or in the patent application. I am currently consulting to M&Q on this and other matters. I am being paid for my time for providing such consulting services to M&Q.
- 9. I have reviewed the patent application, the Office Action dated October 1, 2002, and the pertinent references cited in the Office Action. I have also reviewed independent claims 1, 32, 34, 36 as amended, and new claim 38.
- 10. The invention claimed in the patent application relates to the field of food service equipment and supplies. More particularly, the invention relates to the art or field of plastics conversion. Plastics conversion involves converting plastic resin to a film, and converting plastic film to plastic bags. In my opinion, a person of ordinary skill in the art of plastics conversion would have about 5 to 7 years of experience working for a plastics converter and would have a Bachelor of Science degree in at least one of the following areas: plastics engineering, mechanical engineering, chemical engineering, packaging or industrial engineering. Typically, the work experience would involve applied engineering in which industry applications for resins and plastic films are sought.
- 11. The Office Action states that the invention recited in claims 1, 32, 34, 36 and 38 would have been obvious to a person of ordinary skill in the art in view of various combinations of U.S. Pat. No. 4,320,699 to Binks, U.S. Pat. No. 2,542,413 to Ibsch, Jr., U.S. Pat. No. 4,828,134 to Ferlanti, U.S. Pat. No. 3,549,451 to Kugler, and a product brochure from M&Q Plastic Products, Inc. In my opinion, it would not have been obvious to a person of ordinary skill in the art to combine the teachings of these documents to reproduce the claimed invention. Detailed support for my opinion is set forth below.
- 12. An important feature of the claimed invention is the contour fit pan liner, which is formed in the shape of a bag and includes an elegant contour. I describe this contour as "elegant" because of the way that it is implemented.
- 13. When I first saw an actual sample of the contour fit pan liner, I was presented with a square bottom pan liner (i.e., a bag-shaped pan liner without the contour fit) and the contour fit pan liner. I was puzzled by the shape of the contour fit pan liner.

Even through I am well aware of many different bags, liners and food packages including bags that are gusseted to form a flat bottom or to be self-standing, it was not apparent to me why the contour fit pan liner was shaped like it is shaped. It was certainly not obvious to me why this shape was used or what advantages it would have. This is especially true when the pan liner is used in a large, shallow food service pan. Once it was explained to me how the shape resulted in a contour fit in a food service pan, I then understood and appreciated the importance of the contour fit.

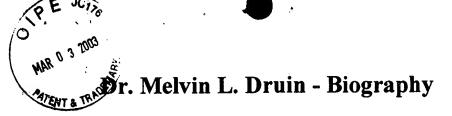
- 14. It is my opinion that a person of ordinary skill in the art would generally be knowledgeable about cooking sheets such as that disclosed by Binks, and satchel-bottom or gusseted bags such as that disclosed by Kugler. A person of ordinary skill in the art may not have specific knowledge about laminated cooking vessels such as those disclosed by Ferlanti and Ibsch, because such vessels are uncommon. Nonetheless, it is my opinion that the invention recited, for example, in claim 1 would not be obvious to a person of ordinary skill in the art.
- 15. Binks discloses a cooking sheet, but does not disclose a contoured bottom edge. Furthermore, the cooking sheet of Binks is not a bag and therefore does not offer the same advantages or suffer from the food entrapment problem of a bag-type pan liner.
- 16. Kugler discloses a satchel bottom bag, not a pan liner. The bag of Kugler is for packaging and is therefore shaped to hold a product. Kugler does not disclose a liner that is contoured to fit a container as in the present invention. Furthermore, the Kugler bag is not suitable for cook, serve and store applications targeted by the present invention, and does not address the problem of food entrapment.
- 17. Ferlanti and Ibsch disclose laminated vessels which bear little relevance to the bag-shaped pan liner of the invention. Neither Ferlanti nor Ibsch would suggest to a person of ordinary skill in the art to line a pan with a liner having a pre-formed bag-shaped body.
- 18. Ferlanti discloses a cooking vessel having a plurality of nested metal layers. A liquid or TEFLON material is disposed between the metal layers to improve heat transfer. The metal layers of Ferlanti constitute the food-contacting surface or liner. The liquid or TEFLON material is used for heat transfer and does not constitute a liner. Thus, Ferlanti teaches use of metal, not plastic, as a liner.
- 19. Ibsch discloses a laminated dish. The dish is made from moisture-proofed paper, plastic, or other composition material. Such a dish is for a wholly different application that the present invention. Ibsch is not a liner, and is unsuitable for high temperature use or for cook, serve, and store applications.

- 20. The M&Q product brochure shows a polymeric cooking bag, but does not suggest having a contour fit to prevent food entrapment.
- 21. Polyethylene pan liners have been used in the food service industry for more than about 30 years. Because the polyethylene cannot withstand temperatures of more than about 120 degrees Celsius, they are not used for cooking or high temperature serving. However, they have seen widespreaduse for serving and storage. While, these polyethylene pan liners suffer from the same food entrapment problem as the high temperature pan liners, I have not seen any pan liner prior to the present invention that had a contour fit.
- 22. It is my opinion that this long standing deficiency in low temperature pan liners and in the later-developed high temperature pan liner is evidence that the claimed invention would not have been obvious to a person of ordinary skill in the art.
- 23. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the present patent application or any patent issued thereon.

Respectfully submitted

Dr. Melvin L. Druin

Date: Feb. 15, 2003



Dr. Melvin L. Druin is the founder and President of M. L. Druin and Associates and PolyPlas Development L.L.C., both consulting and contract R & D companies, serving the plastics packaging industries (since 1990), including the suppliers of plastics resins, packaging, and end-user processors / packers of plastics packaging for food and beverage use.

He is the founding Executive Director of the Center for Processing of Plastic Packaging at New Jersey Institute of Technology (NJIT). CPP was the first Center in the USA to focus exclusively on the processing and manufacturing of plastics for packaging uses. The Center, with broad based capabilities and expertise in extrusion, injection molding and co-extrusion of multi-layer solid and foamed sheet /thermoformed packaging, provides proprietary-sponsored contract R & D services to member companies

He also currently serves as the Director of Development for the Polymer Processing Institute (PPI) at New Jersey Institute of Technology (NJIT).

Dr. Druin has a Doctorate in Chemical Engineering from NJIT. He has thirty-four years experience as a plastics researcher; senior level industry executive; University Research Professor and University senior level executive; and industrial consultant.

He served as an Officer and Corporate Vice President for Campbell Soup Company, from 1984 - 1990, responsible for the company's worldwide packaging R & D organization. He developed the corporate packaging strategy and positioned Campbell as a leader in developing consumer oriented, functional packaging forms, with a focus on improved and new convenience packaging for shelf stable, frozen and refrigerated food applications.

His packaging organization at Campbell's started-up Campbell's Plastic Center to develop new prototype plastic packaging and was also responsible for developing and implementing new two-piece metal can self-manufacturing, and for technical service support to Campbell's worldwide can operations.

As an expert in plastics technology as well, his organization designed and commercialized Campbell's first CPET plastic food tray manufacturing operation at their Modesto, California Plant. This facility was the largest scale CPET line in the world, producing up to 125 million dual ovenable trays for Campbell's Swanson Frozen Food Division.

Dr. Druin joined Campbell in 1984, after seventeen years with the Celanese Plastics & Specialties Company, where he served as Technical Director of the Plastics Group and Engineering Resins.

At Celanese, he was responsible for a staff of 110, with an expense budget of \$10 million, supporting all technical process, product, application and diversification R & D activities in the areas of Engineering Resins (Celcon Acetal Copolymer, PBT, and Nylon 6), High Performance Resins (Liquid Crystal Resins), PET Bottle Resins, Extruded Pipe and Fittings, and Spray Spun Nylon Filter Cartridges. He was responsible for R & D laboratories and associated staffs, located in Summit, New Jersey, Corpus Christi, Texas, and Hilliard, Ohio. In addition Dr. Druin was also responsible for Engineering Resins Technical Service (field technical support functions to the end-users).

At Celanese, he was the co-inventor of Celgard Microporous Film, now commercial with sales exceeding \$100 MM, used for specialty medical devices such as, membrane oxygenators (for open-heart surgery), for skin patches (control and release of drugs into the body) and for high energy battery systems.

Dr. Druin is the inventor of Celanese's manufacturing process for graphite fibers. The business was sold to BASF for \$165 million in 1984.

While at Celanese his technical organization developed and supported the commercialization of PETPAC, PET resin for use in carbonated beverage bottles, in 1978, becoming the second supplier, following Goodyear into the marketplace.

#### General

Dr. Druin is the author of 14 issued U.S. patents in engineering plastics, structural composites, polymer blends, and microporous plastic films. He is also the author of over 35 papers and conference presentations in plastics packaging and plastics materials.

Dr. Druin served on the Board of Trustees of New Jersey Institute of Technology, (NJIT),1988-1996, was a past Chairman of the Board of Trustees of the Plastics Institute of America, and served on the Advisory Committees for the Departments of Chemical Engineering at NJIT, University of Southern Mississippi and Manhattan College.

He was awarded the NJIT Trustee Award, and the NJIT Edward F. Weston Medal for Distinguished Professional Achievement by an Alumnus. He was inducted into the New Jersey Inventor's Hall of Fame in 1992.



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e-mail: mldruin@aol.com

#### **ACCOMPLISHMENTS - SUMMARY**

Doctor of Engineering Sciences with thirty two years of technical R & D, and management accomplishments, including fourteen issued U.S. patents in plastic films, engineering resins and composites and the author of over thirty papers and conference presentations in plastics and packaging.

As Campbell Soup Corporate Vice President was responsible for the company's worldwide packaging organization.

At New Jersey Institute of Technology founded and started-up the Center for Processing of Plastic Packaging (CPPP).

Founded M. L. Druin & Associates, (consulting group) and co-founded PolyPlas Development (a contract R & D company), both specializing in packaging systems for food and beverage applications, and advanced plastic materials.

#### CENTER FOR PROCESSING OF PLASTIC PACKAGING

As founder and Executive Director of the Center for Processing of Plastic Packaging, the
Center is the first in the USA to focus exclusively on the processing and manufacturing of
plastics for packaging uses. The Center provides proprietary-sponsored contract R &D
services to member companies from the resins, packaging and end-user (food,
pharmaceutical, medical, etc.) industries.

# M. L. DRUIN & ASSOCIATES / PolyPlas Development

- As founder and President of M. L. Druin & Associates and co-founder and President of PolyPlas Development, established major consulting and contract research & development services in plastics converting and packaging with Dow Plastics, Shell Chemical Co, Goodyear Polyester Division, Walter Dorwin Teague Associates, Inc., Campbell Soup Co., Church & Dwight, Alusuisse / Therma-Plate, Philippines / Micronesia & Orient Navigation Company, Sig Combibloc Inc., Triarc Beverage Group, Sealed Air, and Pepsi Cola
- Provided these companies and others with consulting and contract development services focused on commercial and market development, application and technical development, business strategy development, and new business diversification.
- Identified market / end-user directed packaging opportunities, for a major food and a major beverage company, with bottom line dollar potential of \$25 - \$100 million.

#### CAMPBELL SOUP COMPANY

As Campbell Soup Company Corporate Vice President and head of its worldwide
packaging organization, built a packaging technical R & D organization to help Campbell to
grow globally and to differentiate its food products with a competitive edge in packaging
performance and cost.

105A Woodland Avenue Avon-by-the-Sea, New Jersey 07717 Phone: 732-897-9784 Fax: 732-897-9785

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performance and cost.

## CAMPBELL SOUP COMPANY (Continued)

- Positioned Campbell Soup Company as a leader in developing consumer oriented, functional packaging forms, with a focus on improved and new convenience packaging for shelf stable, frozen and refrigerated food applications.
- Developed and implemented new metal can technology for two piece can self-manufacturing Responsible for technical service and manufacturing support to Campbell's worldwide can operations (produce over 5 billion cans / year for captive use).
- As an expert in plastics technology, designed and commercialized Campbell's first plastic (CPET) container manufacturing operation at their Modesto, CA frozen food plant.
- Developed 5-year Corporate Packaging Strategy that identified packaging savings potential of over \$30 MM.
- Established over 60 vendor / material supplier joint development packaging programs with 40 companies in the U. S., Europe, and Japan.
- Set Corporate policies and strategies on packaging and solid waste and on tamper evidence.
- Developed and implemented a New Packaging Development Process for rapidly commercializing new packages: from the ideation or identification stage; through concept development; to package development; to commercialization in Campbell's food plants.
- Started up Campbell's Plastic Center to develop new prototype plastic packaging.

#### CELANESE PLASTICS & SPECIALTIES COMPANY

- Inventor of Celgard Microporous Film. Scaled-up and started up semi-works. Product now commercial, with sales over \$100 MM, in medical and energy applications.
- Basic inventions in Graphite Fibers; scaled-up process; started up first semi-works. Business sold to BASF for \$165 million in 1984.
- Developed manufacturing process for PBI monomer; from laboratory through commercial scale.
- Developed two new product lines; PETPAC (PET resin for carbonated beverage bottles) and Hytrex (spay spun Nylon industrial filter cartridges), commercialized in 1978 and 1979, respectively.
- Implemented cost reduction program in Engineering Resins, resulting in cumulative cost savings of \$43 MM from 1976 through 1982, with an in-year savings, in 1982 of \$13 MM.
- Developed a worldwide Polyacetal Technical Strategy with German and Japanese affiliates.
- Developed and implemented a process of commercializing new plastic products, from the opportunity identification stage through product / process development to full commercial manufacture and sale.
- Established an Applications Development organization, to broaden and grow the end-use applications of current and newly developed Engineering Resins products.

## PROFESSIONAL EXPERIENCE

#### NEW JERSEY INSTITUTE OF TECHNOLOGY

1994-1997

Executive Director - Center for Processing of Plastic Packaging (CPPP), Research Professor of Chemical Engineering

Responsible for founding and starting-up CPPP. Responsible for business strategy, financial plans and for identifying and developing major funding sources and Center membership. Responsible for identifying major areas of technical focus.

#### M. L. DRUIN & ASSOCIATES / POLYPLAS DEVELOPMENT

1990-Present

## President and Founder

Formed M.L. Druin & Associates in 1990 and PolyPlas Development in 1994 to provide technical development, commercial and market development, new business diversification, and strategy development expertise and consulting and technical development services in the areas of plastics converting and packaging and in high performance plastics materials. The latter includes engineering plastics, structural composites, polymer alloys and blends, and speciality mocroporous films.

#### CAMPBELL SOUP COMPANY

1984-1990

Vice President Packaging - Corporate Officer (Elected Corporate Officer, 1988)

V.P. Packaging Systems, U.S. Division (1989-1990)

V.P. Packaging, Campbell Container Division (1986-1989)

Responsible for the Corporate Packaging Research & Development function (75 people) servicing worldwide Campbell Soup Company packaging and metal can needs; responsible for the Plastics Packaging Technical Center and Laboratory in Moorestown, NJ, and for all container manufacturing technical service and support. Primary liaison with all Business Units, worldwide. Responsible for approval of all new packaging capital improvements, for U.S. Division.

Responsible for identifying, developing and implementing all new and improved packaging systems. Program management responsibility for all new and modified packaging systems, from concept through commercialization in the plants and including packaging specifications, cost improvements, packaging design, regulations and interface with packaging convertors, equipment vendors and material suppliers.

## Director of Packaging Development and the Plastics Center (1984-1986)

Responsible for all packaging development, worldwide, for the Campbell Soup Container Co., and for the Plastics Packaging Technical Center in Moorestown, NJ.

#### CELANESE PLASTICS & SPECIALTIES COMPANY (CP & SC)

1972-1984

Technical Director, Plastics Group (1978 - 1984) Technical Director, Engineering Resins

Responsible for all technical process, product, application and diversification and research activities affecting the Engineering Resins, Piping Systems, Polyester Bottle Resin and

## CELANESE PLASTICS & SPECIALTIES COMPANY (Continued).

1972-1984

# Technical Director, Plastics Group (1978 - 1984) - (Continued) Technical Director, Engineering Resins

Hytrex Spray Spun Cartridge Divisions of CP & SC. Primary technical liaison with Marketing and Manufacturing groups and with affiliate partner companies in Europe and Japan. In addition, directed Engineering Resins Technical Service for a two year period.

Responsible for a staff of 110 people with an expense budget of \$10 million, including the Engineering Resins Molding and Product Dev. Laboratory in Summit, NJ, the Engineering Resins Process and Manufacturing Development Pilot Operations in Corpus Christi, Texas, and the Piping Divisions Product and Process Laboratory and Hytrex Pilot Plant in Hilliard, Ohio.

## Technical Manager, Engineering Resins (1974-1978)

Responsible for all Engineering Resins process and product R & D, Polymer Processing Pilot Plant and New Business Exploration.

## Group Leader, Celgard Microporous Films (1972-1974)

Responsible for Celgard microporous film application, product, process development, technical services, and semi-works scale-up, start up and operations.

#### CELANESE RESEARCH COMPANY

1967-1972

## Group Leader, Senior Engineer (1967-1972)

Responsible for Composites / Graphite Fiber basic process and product R & D, technical service and semi-works design start-up and operations. Responsible for microporous film research, new tire cord research and chemicals synthesis and scale-up.

#### NEW JERSEY INSTITUTE OF TECHNOLOGY

1962-1967

#### Instructor of Chemical Engineering (1962-1967)

Taught courses in: Computers for Chemical Engineers; Fluid Flow; Heat Transfer; Thermodynamics; and Industrial Organic Chemistry

#### **EDUCATION**

D.E.S. in Chemical Engineering, New Jersey Institute of Technology 1968

M.S. in Chemical Engineering, New Jersey Institute of Technology	1964
B.S. in Chemical Engineering, New Jersey Institute of Technology	1962

# HONORS AND FELLOWSHIPS

New Jersey Institute of Technology Edward F. Weston Medal for Distinguished Professional Achievement by an Alumnus, May 1993 Inducted into New Jersey Inventor's Hall of Fame, Feb. 1992.

## **HONORS AND FELLOWSHIPS (Continued)**

Outstanding Service Award, NJIT's Educational Opportunity Program, May 1992.

Lupus Foundation of New Jersey Outstanding Service Award, April, 1989.

Leadership Service Award, Plastics Institute of America, April, 1986.

New Jersey Institute of Technology Trustee Award, May 1985.

National Science Foundation Fellowship for Engineering Teachers, Summer, 1964.

DuPont Research Fellowship, Summer, 1966.

Cyanamid Teaching Fellowship, 1962-1964.

Nopco Chemical Co. Scholarship, 1961-1962.

National Science Foundation Research Fellowship at Syracuse University, Summer 1961.

#### **PROFESSIONAL AFFILIATIONS**

Board of Trustees of New Jersey Institute of Technology; Appointed by the Governors of NJ, Jan. 1989 to July 1994.

Chairman of the Board of Trustees of the Plastics Institute of America, 1984-1986; Chairman Elect 1983-1984; Member of Board, 1980 - 1990.

Chairman of the Community Advisory Board (CAB) of New Jersey Institute of New Jersey Educational Opportunity Program, 1983-1986; Vice Chairman of CAB, 1980-1983; Member of CAB, 1978-1988.

Chairman of the Advisory Committee of New Jersey Institute of Technology Chemical Engineering Department, 1986; Member of the Advisory Committee, 1981-1987.

Member of the Advisory Committee, University of Southern Mississippi, Chemical Engineering Department, 1977-1978.

Member of the Advisory Committee, Manhattan College Chemical Engineering Department, 1974-1977.

#### OTHER AFFILIATIONS

Treasurer of the Board of Trustees of the International Enamelist Society, 1997 to present.

President of the Board of Trustees of The Craft Emergency Relief Fund, 1995 to 1997; Treasurer and Member of the Board, Oct. 1991 to 1995.

Vice President, Board of Trustees of Lupus Foundation of New Jersey, 1989 to present; Member of the Board, 1986 to present; Chairman of Corporate Sponsors Program, 1986 to present.

President of First Mountain Crafters, 1974-1975; Board of Trustees 1973 to 1994; Director and co-founder of Co-op Craft Gallery, South Orange NJ, 1980-1990.

#### **PERSONAL**

Married; Three daughters; Height 6'3"; Weight 210 lbs.

# UNITED STATES PATENTS ISSUED

- 3,679,538, "Novel Open-Celled Microporous Film," July 25, 1972
- 3,723,150, "Surface Modification of Carbon Fibers," March 27, 1973
- 3,723,157, "Production of Resin Impregnated Fibrous Graphite Ribbons," March 27, 1973
- 3,754,957. "Enhancement of the Surface Characteristics of Carbon Fibers," Aug. 28, 1973
- 3,801,404, "Novel Open-Celled Microporous Film," April 2, 1974
- 3.853.418. "Safety Support for Use Adjacent to a Vehicular Trafficway," Dec. 10, 1974
- 3.859,187. "Electrolytic Process for the Surface Modification of High Modulus Carbon Fibers." Jan. 7, 1975
- 3,865,876. "Synthesis of 3,3' Diaminobenzidine From 3,3' Dichlorobenzidine," Feb. 11, 1975
- 3.894.884. "Process for the Enhancement of Low Modulus Carbon Fibers, " July 15, 1975
- 3,920,785. "Process for Increasing the Porosity of Open-Celled Microporous Film," Nov. 18, 1975
- 3,943,175, "Synthesis of Pure 3,3' Diaminobenzidine," March 9, 1976
- 4,229,340, "Glass Fiber-Reinforced PET/Nylon Blends," Oct. 21, 1980
- 4,351,758, 'Polyester Blends; Polyethylene & Polybutylene Terephthalate, " Sept. 28, 1982
- 4,444,931, "Polyester Blends: Smoothness, Gloss," April 24, 1984

#### **PUBLICATIONS**

Kreps, S.I., Druin, M.L., Czorny, B., "Florescence Analysis for Traces of Naphthacene in Anthracene," Analytical Chemistry, Vol. 37, Pages 586-588, April 1965

Kirshenbaum, I., Issacson, R.B., Druin, M.L., "Higher Order Transitions in Poly-3-Methyl-1-Butene and Poly-4-Methyl-1Pentene," <u>Polymer Letters</u>, Vol. 3, Pages 525-528, 1965

Druin, M.L., Kreps, S.I., "Prediction of Viscosity of Liquid Hydrocarbons," <u>I & EC</u> Fundamentals, Vol. 9, Pages 79-83, Feb. 1970

Bierenbaum, H.S., Isaacson, R.B., Druin, M.L., Plovan S.G., "Microporous Polymeric Films," <u>Ind. Eng. Chem., Prod. Res. Develop.</u>, Vol. 13, No. 1, Pages 2-9, March, 1974

### CONFERENCES AND PRESENTATIONS

- Chairman FoodPlas I Conference, Secaucus, NJ, Feb., 1984 Chairman - FoodPlas II Conference, Secaucus, NJ, Feb., 1985 Chairman - FoodPlas IV Conference, Orlando, FL, Mar., 1987 Chairman - FoodPlas V Conference, Orlando, FL, Mar., 1988 Chairman - FoodPlas VI Conference, Orlando, FL, Mar., 1989 General Chairman - FoodPlas VIII Conference, Orlando, FL, Mar., 1991 General Chairman - FoodPlas IX Conference, Orlando, FL, Mar., 1992
- "Summary & Review," presented at FoodPlas I, Secaucus, NJ, Feb., 1984 "Summary & Review," presented at FoodPlas II, Secaucus, NJ, Feb., 1985 "Summary & Review," presented at FoodPlas III, Orlando, FL, Mar., 1986 "Summary & Review," presented at FoodPlas IV, Orlando, FL, Mar., 1987 "Summary & Review," presented at FoodPlas V, Orlando, FL, Mar., 1988 "Summary & Review," presented at FoodPlas VI, Orlando, FL, Mar., 1989
- "Future Packaging Challenges," part of executive panel at the DuPont Packaging Forum, NY, NY, Feb., 1987
- "Innovations in Plastics Packaging at Campbell Soup Company," presented at FoodPlas IV, and published in the Conference proceedings, Orlando FL, Mar., 1987
- "Shelf Stable Soups; Behind the Scenes," presented with Tarr, G. at FoodPlas V, and published in the Conference proceedings, Orlando, FL, Mar., 1988
- "An Overview of Packaging and Supplier Interaction and Innovation at Campbell Soup Company," presented at the Plastics Show, and published in the Conference proceedings, Chicago, IL, June, 1988
- "Packaging Trends and Needs at Campbell Soup Company," presented at the DuPont Converter Conference, and published in the Conference proceedings, Zermatt, Switzerland, Jan., 1989
- "Microwave Packaging at Campbell Soup Company," presented at the Eastern Food Science Conference VI, Food Technology: A View of the Future, and published in the Conference proceedings, Hershey, PA, Oct., 1989
- "Facing Solid Waste Issues in the Food Industries," part of an executive panel at Future-Pak '89, Miami, FL. Dec., 1989
- "Microwave Packaging at Campbell Soup," presented at the 5th International Conference on Specialty Plastics and Applications, and published in the Conference proceedings, Zurich, Switzerland, Dec., 1989
- "What the Green Conscious Food Processor Wants From Its Packaging Suppliers," presented at EnviroReg '90 Conference, and published in the Conference proceedings, Arlington, VA, Dec., 1990
- "What the Green Conscious Food Processor Needs From Its Packaging Suppliers," presented at the AICHE National Summer Meeting; Session # 14 Food Industry: Post Consumer Waste, and published in the Conference proceedings, Minneapolis, MN, Aug., 1992

## **CONFERENCES AND PRESENTATIONS** (Continued)

- "Food Packaging Development," presented at University of California Food Product Development / Ingredient Technology Workshop, Davis CA, March 17, 1993
- "Partnering . . Another Approach to Growing Your Business," presented at Packaging Strategies '93 Conference, and published in the Conference proceedings, Atlanta, GA, April 1, 1993
- "New Packaging Technologies," presented at Private Label Manufacturers Association Conference on Packaging & Raw Materials, and published in the Conference proceedings, Cambridge Massachusetts, April 27, 1993
- "Packaging Prospects for Post-Consumer Recycled Plastics", presented at Green Packaging '94 Conference, Washington, D.C., June 1-2, 1994
- "Competitive Analysis: Tools to Understand your Competition", presented at SPE RETEC How to Thrive in the Leaner Meaner '90s, Ryebrook, NY, October 6, 1994
- "Microporous Polymeric Films Relationship of Membrane Properties to Process & Morphology", Seminar presented at New Jersey Institute of Technology, CHE Dept., Newark, NJ, Nov. 1994
- "What's Hot in Plastics Packaging?... PET Packaging," presented at AICHE 1995 Fall Lecture Series: Chemical Engineering for the Twenty-First Century, Session # 5, Florham Park, NJ, Oct. 19, 1995.
- Chairman NOVA-PACK '96, The World Congress on Polyester Packaging Innovations for Food and Beverages, Sponsored by Schotland Business Research, Inc., Dusseldorf, Germany, May 7, 8, 1996.
  - Moderator of End-User Panel, "How are Buyers of PET Packaging Addressing Issues Important to the Success of Their Food and Beverage Businesses", Session 3, May 8, 1996.
- Moderator, Contour Cans . . . . Shaping the Future, Sponsored by International Can Industry Council, and Packaging Strategies, Inc., San Francisco, CA, Oct. 23, 1996.
- "How the Chemical Revolution in Plastics Will Alter Packaging", presented at Packaging Strategies '97 Conference, and published in the Conference proceedings, Atlanta, GA, April 4, 1997
- "CPET and APET Markets, Trends and Applications", presented at Workshop: APET and CPET Sheet Coextrusion and Thermoforming for Food Tray Uses, and published in the Workshop proceedings, New Jersey Institute of Technology, Newark, NJ, Session # 1, May 27, 1997.
- "Potential Applications for Barrier CPET . .Myth or Reality", presented at Workshop: APET and CPET Sheet Coextrusion and Thermoforming for Food Tray Uses, and published in the Workshop proceedings, New Jersey Institute of Technology, Newark, NJ, Session # 1 May 27, 1997

## **CONFERENCES AND PRESENTATIONS** (Continued)

"CPET and APET Food Tray Performance Requirements", presented at Workshop: APET and CPET Sheet Coextrusion and Thermoforming for Food Tray Uses, and published in the Workshop proceedings, New Jersey Institute of Technology, Newark, NJ, Session # 2 May 28, 1997

"Estimated Manufacturing Costs for CPET and APET Food Trays Compared to Competitive Trays", presented at Workshop: APET and CPET Sheet Coextrusion and Thermoforming for Food Tray Uses, and published in the Workshop proceedings, New Jersey Institute of Technology, Newark, NJ, May 28, 1997

Chairman - Polyester Packaging: The Critical Path Ahead Conference, Sponsored by Packaging Strategies, Inc., Newark, NJ, May 28-30, 1997.

Moderator of "Packaging User Panel . . . Here's What We Think", Session # 1, May 29, 1997.

- "PET Properties and Performance Requirements for Bottles and Food Trays", presented at Polyester Packaging: The Critical Path Ahead Conference, and published in the Conference proceedings, Newark, NJ, Session # 2, May 29, 1997.
- "What Drives PET Bottle Pricing", presented at Polyester Packaging: The Critical Path Ahead Conference, and published in the Conference proceedings, Newark, NJ, Session # 2, May 29, 1997.
- " Use of Post-Consumer PET in Packaging for Food and Beverage Use", presented at Polyester Packaging: The Critical Path Ahead Conference, and published in the Conference proceedings, Newark, NJ, Session # 2, May 30, 1997.
- "New PET Technologies", presented at Becton Dickinson Seminar Series, Franklin Lakes, NJ, June 27, 1997.
- "CPET Sheet for Food Applications: Markets and Manufacturing", presented at Film & Sheet 97 Conference, and published in Conference proceedings, Somerset, NJ, Dec. 10, 1997.

## **CONFERENCES AND PRESENTATIONS** (Continued)

Chairman – DRINKPAK' 99, The International Conference on New Developments in Beverage Packaging, Sponsored by Ryder Associates, Inc., and Future-Pak Conferences, Inc., Orlando, Florida, December 1-3, 1999.

Moderator of Packaging User Panel, "What we Need from our Equipment and Materials Suppliers", Session 2, Dec. 2, 1999.

"Is Heat-Set PET Going Down for the Count Versus Aseptic and Extended Shelf Life (ESL) for Filling Juices and New Age Beverages? Is ESL Milk Positioning Itself as a New Age Beverage", presented at DRINKPAK '99, The International Conference on New Developments in Beverage Packaging, and published in the Conference proceedings, Orlando, Florida, Session 2, December 2, 1999.

"The US Market: Current and Future Applications for Aseptic Shelf-Stable and ESL Products in Plastics Containers", presented at DRINKPAK '99, The International Conference on New Developments in Beverage Packaging, and published in the Conference proceedings, Orlando, Florida, Session 2, December 2, 1999.